

ABSTRACT

The present invention relates to a method for modifying a porous film mainly having Si-O bonds wherein a thermal treatment is conducted without using a metal catalyst by bringing an organic silicon compound into contact with the porous film. The organic silicon compound includes one or more Si-X-Si bond unit (wherein X represents O, NR, C_nH_{2n} , or C_6H_4 ; R represents C_mH_{2m+1} or C_6H_5 ; m is an integer between 1 and 6; and n is 1 or 2) and two or more Si-A bond units (wherein A represents H, OH, OC_eH_{2e+1} or a halogen atom and can be the same or different within a single molecule; and e is an integer between 1 and 6). Since the porous film obtained by this method is excellent in the hydrophobic property and the mechanical strength, it can be used as an optically functional material or an electronically functional material. The porous film is especially useful as a semiconductor material, and can be preferably used as an interlayer insulating film in a semiconductor device.